



General Information

The FS30 is designed for use with any SeaMetrics flow meter or flow sensor to activate a switch closure at a set flow rate. Particularly suited for critical flows, it is called an “active” flow switch because if it should fail it would tend to fail in a false “no flow” condition, unlike vane-type switches which easily fail in a false “flow” mode. The FS30 can be set to activate on rise or fall, and the set point is input using rotary digital switches.

A variable hysteresis or deadband setting is provided to accommodate varying amounts of turbulence in the flow metering application. If the turbulence is significant, a larger deadband keeps the switch from chattering on and off when the flow is very close to the setpoint.

Specifications

Power	12 - 36 VDC
Flow Sensor Power	5 VDC, 20 mA
Output	Form C relay, 10 A @ 120 VAC or 28 VDC max
Setting Range	1 - 999 Hz
Accuracy	1 %
Hysteresis	1 - 10%
Modes	High (close on rise), low (close on fall)
Response Speed Switch (after 90% change)	
Change rising	2.0 second
Change falling	3.0 second
Indicators	Power on (green), switch (red)
Temperature	32°- 120°F (0°- 5°C)

Installation

The FS30 can be mounted directly on the flow sensor (“meter mount”) or remotely, fastened to a surface (“wall mount”).

Meter Mount. The FS30 will come preinstalled on the flow sensor if it was ordered as a meter mount. For a retrofit, if the flow sensor already has a square housing on it, it is only necessary to connect the wires and fasten the FS30 to the lower square housing with the same four screws which previously held the blank upper housing. If there is no housing on top of the flow sensor (IP or TX 80-Series, ordered without electronics), a lower housing has to be attached to the flow sensor first. Use an MK10 meter mount kit for this purpose. When the lower housing is on the flow sensor, attach the FS30 to it using the four screws included in the kit.

Wall Mount. Attach the mounting feet included with the wall mount unit. Mark the four mounting holes and drill the intended mounting surface. Attach the FS30 to the surface using four screws. Remove the upper housing, and make connections inside the housing.

Connection

Follow the Connections diagram. If the unit has been ordered as a meter mount, it will be pre-connected to the flow sensor. However, it will still be necessary to remove the upper housing to connect the switch load and enter the setpoint.

Setting

Setpoint. The setpoint is entered using three rotary switches inside the unit (the fourth switch sets hysteresis.) Setting is in pulses per second, in order to make the unit universal for any flow sensor. To obtain the pulses per second, make this calculation:

$\frac{\text{K-factor(meter pulses per gallon)} \times \text{setpoint GPM}}{60}$	
Example:	$\begin{aligned} \text{K-factor} &= 80 \\ \text{GPM} &= 15 \\ \frac{80 \times 15}{60} &= 20 \end{aligned}$
Set the frequency for 20 (020)	

Enter the result, from 001 to 999 on the rotary switches. This number can be changed at any time, and the new setpoint will be immediately entered.

Mode (High Flow or Low Flow). The jumper marked “mode” determines whether the unit switches on rise (flow goes above setpoint) or fall (flow goes below setpoint). The two positions are shown on the label beside the jumper and also on the Connections diagram in this manual.

Deadband (Hysteresis). This adjustment sets the percentage that the flow must go above and below the setpoint before switching occurs. The purpose is to prevent erratic switch cycling if the flow is turbulent and very close to the setpoint. With the typical SeaMetrics flow sensor, 1 to 2% should be adequate. In extremely turbulent installations, it may be necessary to use higher settings, but this would be unusual.

Important note: setting of “0” is 10%.

Operation

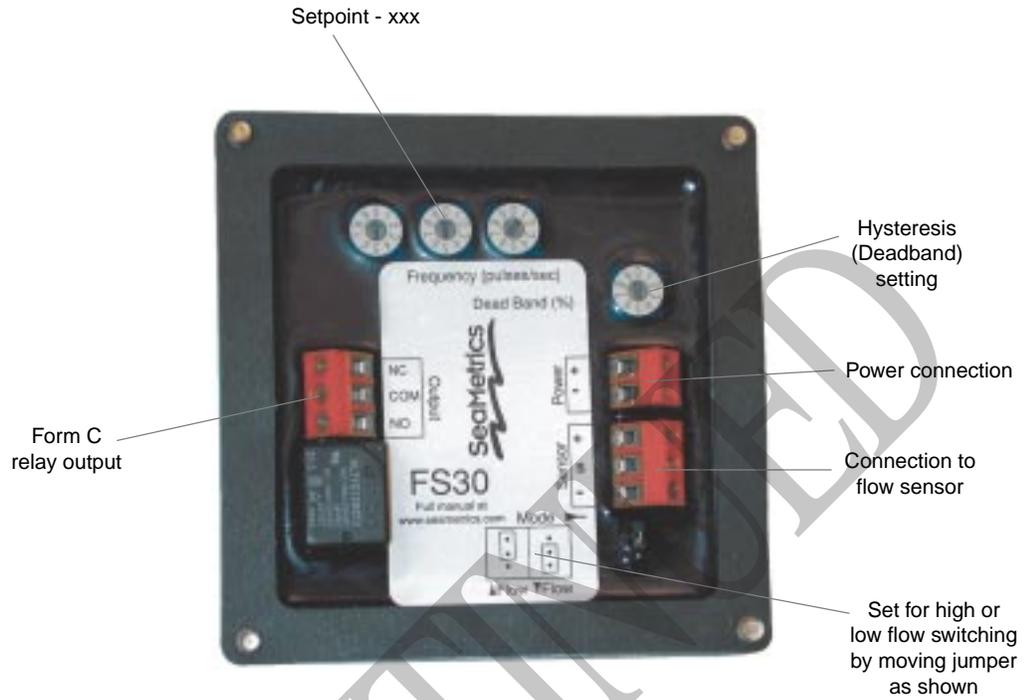
The FS30, when combined with a flow sensor, is a flow switch, that is, it turns “on” when the flow goes below (or above, if desired) some critical flow set by the user. If the unit is set for low flow mode, it remains “off” (relay not energized) unless the flow drops below the setpoint. If the flow does drop below the setpoint, the switch turns “on” (relay energizes) and stays on until flow rises above the setpoint plus half the deadband. In other words, if the deadband is 2% and the setpoint is 100, the switch will stay on until flow exceeds 101. If the unit is set for high flow, the unit turns “on” when flow exceeds the setpoint and turns “off” when it falls below.

Troubleshooting

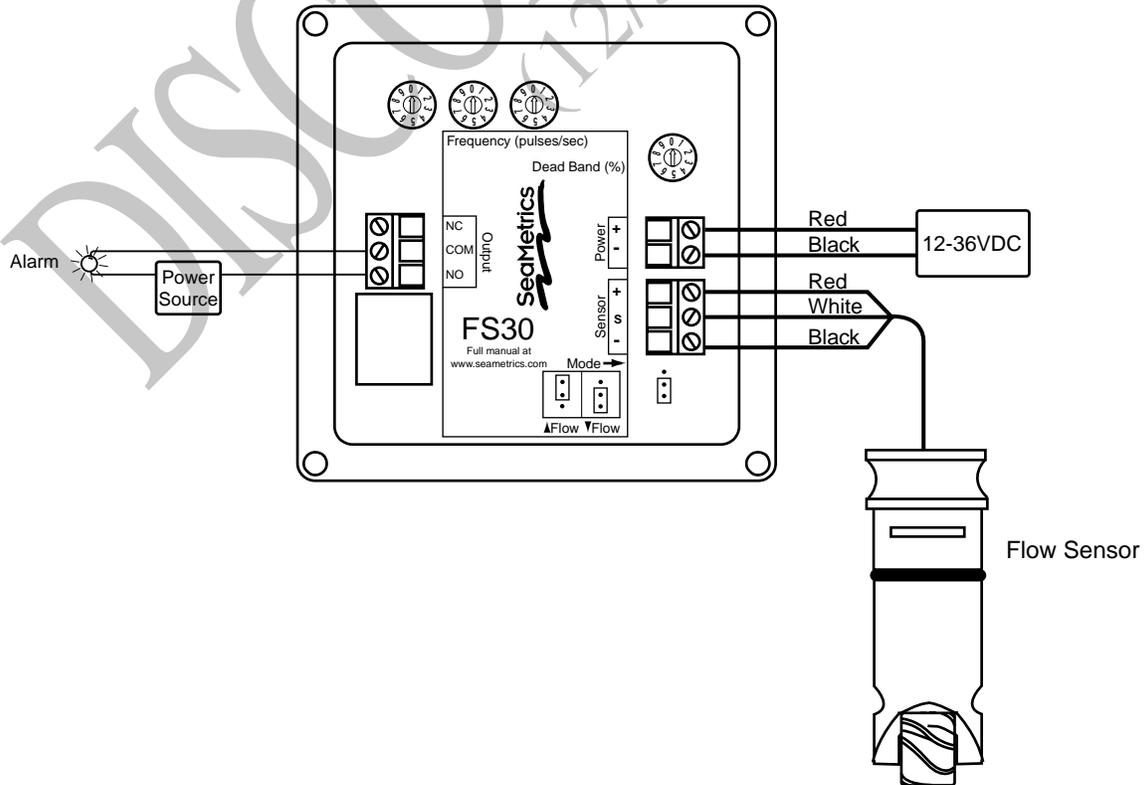
If the unit fails to operate as described above, check as following:

- 1) Power: is the Power indicator lighted? If not, the unit is not powered.
- 2) Setting: is the desired frequency setpoint set as described in the above instructions? Check for leading 0's (50 is entered as 050).
- 3) Mode: is the mode set as desired? (Down arrow means switch when the flow goes below the setpoint, up arrow means switch when flow goes above the setpoint).
- 4) Sensor connections: are all three wires from the sensor on the proper terminals?
- 5) Final test: Remove the sensor from the pipe or shut flow off completely. Put the FS30 in low flow mode (down arrow) and set the frequency for 100. The output light should come on. In the unlikely event it does not, there is a basic electronic failure and the unit should be returned for repair.

Features

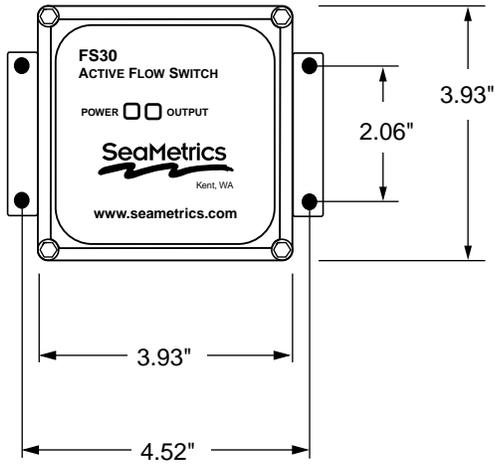


Connections

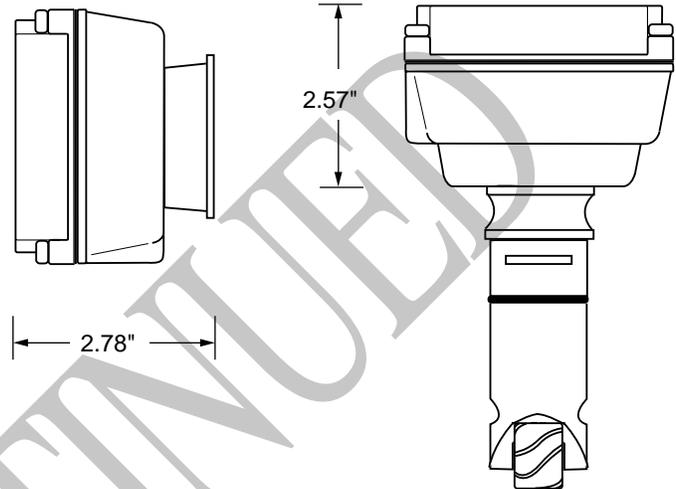


Dimensions

FS30
With Wall Mount Brackets



FS30
Sensor-Mount



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(12/31/06)

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